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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,401	10/22/2001	Harry Hedler	KSN0012	8725
7590		05/10/2004	EXAMINER	
Eric J Groen Baker & Daniels Suite 250 205 West Jefferson Boulevard South Bend, IN 46601		GRAYBILL, DAVID E		
		ART UNIT	PAPER NUMBER	
		2827		
DATE MAILED: 05/10/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/806,401	HEDLER ET AL.	
	Examiner	Art Unit	
	David E Graybill	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 01 March 2004.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) 5-9 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-4 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____.
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In the rejections infra, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Caillat (5861322) and Akram (2002/0109218).

At column 5, line 29 to column 6, line 43, Caillat discloses an electronic module, in particular a multichip module, comprising a multilayer wiring 104, 108, 112, 114, 118 having at least one IC component 130 applied on a component side thereof, said module being unilaterally covered on the component side with a case 134, and comprising a plurality of contact pads 138 on a bottom side of the module through for contacting and integration of the module to a next higher assembly group level, the bottom side of the multilayer wiring constituting directly, without additional wiring substrate, the bottom side of the module, the component side of the multilayer wiring adhering to the hermetic case with its portions that are free from components, said hermetic case being formed by plastics overmolding, and in that the multilayer wiring has a height of less than approximately 100

μm , wherein the multilayer wiring is constituted by a sequence of structured metal planes which are electrically separated from each other by insulating layers 104, 114 and between which purposeful electric connections are established through vias, wherein solderable material 140 is applied to the contact pads on the bottom side of the multilayer wiring, electrically connected to the component side through vias, for establishing contact with the next higher assembly group level ("printed circuit board"), wherein the solderable material is applied in the form of solder balls.

To clarify the disclosure that the multilayer wiring has a height of less than approximately $100\ \mu\text{m}$, it is noted that Caillat discloses that the height of each of the layers 104 and 114 is $5\ \mu\text{m}$ thick; therefore, the total height of the multilayer wiring is $10\ \mu\text{m}$ thick.

However, Caillat does not appear to explicitly disclose a hermetic case.

Nevertheless, as cited, Caillat discloses an underfill case 134, and at paragraph 0004, Akram discloses a hermetic "underfill" case. Moreover, it would have been obvious to use the hermetic underfill case of Akram as the underfill case of Caillat because, as taught by Akram, it would provide environmental protection and enhance the attachment of the component to the wiring.

In addition, it would have been obvious to substitute or combine the underfill case of Akram for or with the underfill case of Caillat because it

would provide an underfill case, and use/substitution of a known element based on its suitability for its intended use has been held to be prima facie obvious. See MPEP 2144.07.

Also, it would have been obvious to substitute the underfill case of Akram for the underfill case of Caillat because it would provide an underfill case when the use of the underfill case of Caillat becomes infeasible, e.g., when the underfill case of Caillat is cost ineffective or when it is unavailable due to a supply disruption.

Applicant's amendment and remarks filed 3-1-4 have been fully considered, are addressed by the rejections supra, and are further addressed infra.

Applicant contends that, at paragraph 25, Akram teaches away from "using underfill materials to hermetically seal the chips."

This contention is respectfully traversed because there is no such teaching at paragraph 25.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-

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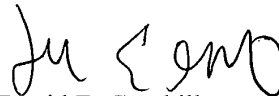
MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 571-272-2815.

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (703) 872-9306.



David E. Graybill
Primary Examiner
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D.G.
6-May-04

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